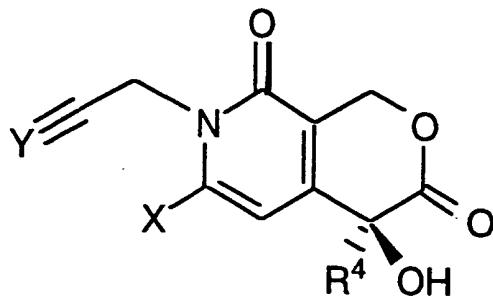


WHAT IS CLAIMED IS:

1. A method of synthesizing pentacyclic compounds via a 4+1 radical annulation/cyclization wherein the precursor



is reacted with an aryl isonitrile, wherein X is selected from the group consisting of Br and I, Y is selected from the group consisting of -N and -C-R³, R³ is selected from the group consisting of hydrogen, a normal alkyl group, a branched alkyl group, an allyl group, a benzyl group, an alkynyl group, a propargyl group, an alkoxy group, a halo group, a silyl group, an amino group, a cyano group, and an acyl group and R⁴ is selected from the group consisting of an alkyl group, an allyl group, a propargyl group and a benzyl group.

2. The method of Claim 1 wherein the reaction of the precursor with an aryl isonitrile takes place in the presence of a coreactant having the formula:

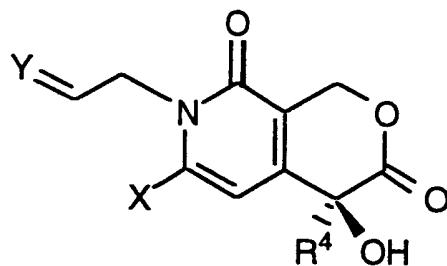


wherein M is selected from the group consisting of Si, Ge and Sn and R is selected from the group consisting of an aryl group and an alkyl group.

3. The method of Claim 2 wherein R₃M-MR₃ comprises hexamethylditin.

4. The method of Claim 2 wherein R₃M-MR₃ comprises hexabutylditin.

5. The method of Claim 2 wherein $R_3M \cdot MR_3$ comprises hexamethyldisilane.
6. The method of Claim 1 wherein R^4 is an ethyl group.
7. The method of Claim 6 wherein R^3 is hydrogen and the aryl isonitrile is 4-methoxyphenyl isonitrile.
8. The method of Claim 6 wherein R^3 is an ethyl group and the aryl isonitrile is 4-methoxyphenyl isonitrile.
9. The method of Claim 6 wherein R^3 is a 4-methylpyrazinomethyl group and the aryl isonitrile is 1,4-benzodioxan-6-isonitrile.
10. The method of Claim 6 wherein R^3 is a 4-methylpyrazinomethyl group and the aryl isonitrile is 3,4-(methylenedioxy)-phenylisonitrile.
11. A method of synthesizing pentacyclic compounds via a 4+1 radical annulation/cyclization wherein the precursor



is reacted with an aryl isonitrile, wherein X is selected from the group consisting of Br and I, Y is selected from the group consisting of $-CH_2$ and $-CHR^3$, R^3 is selected from the group consisting of hydrogen, a normal alkyl group, a branched alkyl group, an allyl group, a benzyl group, an alkynyl

group, a propargyl group, an alkoxy group, a halo group, a silyl group, an amino group, a cyano group, and an acyl group and R^4 is selected from the group consisting of an alkyl group, an allyl group, a propargyl group and a benzyl group.

12. The method of Claim 11 wherein the reaction of the precursor with an aryl isonitrile takes place in the presence of a coreactant having the formula:



wherein M is selected from the group consisting of Si, Ge and Sn and R is selected from the group consisting of an aryl group and an alkyl group.

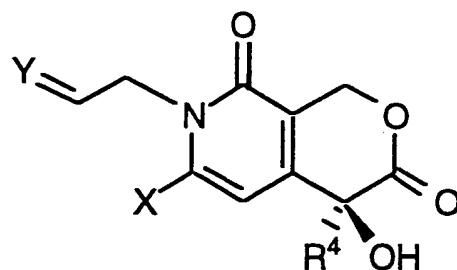
13. The method of Claim 12 wherein R_3M-MR_3 comprises hexamethylditin.

14. The method of Claim 12 wherein R_3M-MR_3 comprises hexabutylditin.

15. The method of Claim 12 wherein R_3M-MR_3 comprises hexamethyldisilane.

16. The method of Claim 11 wherein R^4 is an ethyl group.

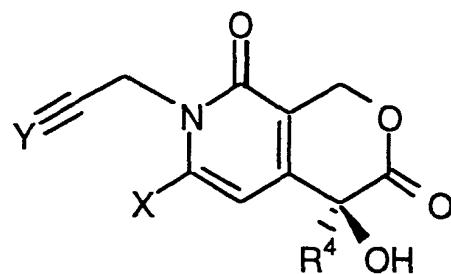
17. A chemical compound having the formula



wherein X is selected from the group consisting of Br and I, Y is selected from the group consisting of -CH₂ and -CHR³, R³ is selected from the group consisting of hydrogen, a normal alkyl group, a branched alkyl group, an allyl group, a benzyl group, an alkynyl group, a propargyl group, an alkoxy group, a halo group, a silyl group, an amino group, a cyano group, and an acyl group and R⁴ is selected from the group consisting of an alkyl group, an allyl group, a propargyl group and a benzyl group.

18. The chemical compound of Claim 17 wherein R⁴ comprises an ethyl group -CH₂CH₃.

19. A chemical compound having the formula

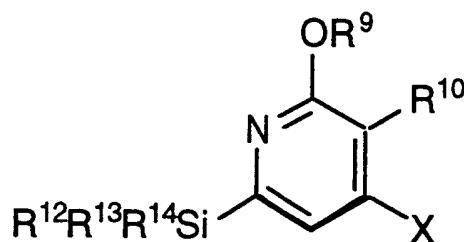


wherein X is selected from the group consisting of Br and I, Y is selected from the group consisting of -N and -C-R³, R³ is selected from the group consisting of hydrogen, a normal alkyl group, a branched alkyl group, an allyl group, a benzyl group, an alkynyl group, a propargyl group, an alkoxy group, a halo group, a silyl group, an amino group, a cyano group, and an acyl group and R⁴ is selected from the group consisting of an alkyl group, an allyl group, a propargyl group and a benzyl group.

20. The chemical compound of Claim 19 wherein R⁴ comprises an ethyl group -CH₂CH₃.

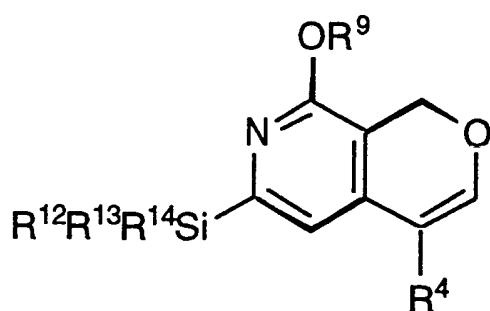
21. The chemical compound of Claim 19 wherein R^3 is selected from the group consisting of hydrogen, an ethyl group, a trimethylsilyl group, nitrogen, $-CH_2Cl$ and a 4-methylpyrazinomethyl group.

22. A chemical compound having the formula



wherein R^9 is selected from the group consisting of a normal alkyl group and a branched alkyl group and wherein R^{10} is selected from the group consisting of $-CHO$ and $-CH_2OCH_2CH=CHR^{11}$, wherein R^{11} is selected from the group consisting of an alkyl group, a vinyl group, an ethynyl group and a phenyl group, wherein R^{12} , R^{13} and R^{14} are independently selected from an alkyl group and an aryl group, and wherein X is selected from the group consisting of I and Br.

23. A chemical compound having the formula



wherein R^9 is selected from the group consisting of a normal alkyl group and a branched alkyl group, wherein R^4 is selected from the group consisting of an alkyl group, an allyl group, a propargyl group and a benzyl group and wherein R^{12} , R^{13} and R^{14} are independently selected from an alkyl group and an aryl group.